



# UNITED STATES NAVY Medical News Letter

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No. 12



## Season's Greetings

*In contrast with the countless stresses of our times, it is immediately evident that the spirit of man throughout Christendom is a splendid thing to behold at Christmas time. This is as it should be, for the deep and abiding Faith of these multitudes of people has been a constant companion in times of adversity and a pillar of strength in the face of disaster. Sheer happiness during the Christmas season is a genuine and spontaneous expression and its recurrence each year bespeaks its bona fide and permanent qualities which for almost 2000 years have been perpetuated among mankind.*

*To all members of our Medical Department whether serving at sea, ashore, or in a distant foreign land, I extend my best wishes for a Merry Christmas and a Happy New Year.*

*To your loved ones, we owe a special debt of gratitude. Their faith in the future, their determination and adaptation to the process of periodic moves to new geographic areas, leaving behind their newly developed and closest friends—only to find new friends at their next station—all of these things are part and parcel of the Navy's strength. To these thousands of family members I also extend my deep appreciation for your devotion and moral support to your Navy man. May you also experience a holy and happy Holiday Season.*

EDWARD C. KENNEY  
Rear Admiral, MC, USN  
Surgeon General

*United States Navy*  
*MEDICAL NEWS LETTER*

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*Policy*

The U.S. Navy Medical News Letter is basically an official Medical Department publication inviting the attention of officers of the Medical Department of the Regular Navy and Naval Reserve to timely up-to-date items of official and professional interest relative to medicine, dentistry, and allied sciences. The amount of information used is only that necessary to inform adequately officers of the Medical Department of the existence and source of such information. The items used are neither intended to be, nor are they, sus-

ceptible to use by any officer as a substitute for any item or article in its original form. All readers of the News Letter are urged to obtain the original of those items of particular interest to the individual.

*Change of Address*

Please forward changes of address for the News Letter to: Commanding Officer, U.S. Naval Medical School, National Naval Medical Center, Bethesda, Maryland 20014, giving full name, rank, corps, and old and new addresses.

FRONT COVER: Original sketch designed for the Medical News Letter by Mrs. Josephine L. Bottazzi and Mrs. Sara B. Hannan of the Graphic Section, Administrative Publications and Printing Branch, Administration Division, Bureau of Medicine and Surgery. As staff artists and medical illustrators in BUMED, their dedicated services are available to and utilized by all divisions, branches and sections in this Bureau, at one time or another. Versatility, talent and keen insight into the areas of Medical Department activity which their work supports characterize these fine Civil Service career employees. To both, a hearty WELL DONE!—and a Merry Christmas and Happy New Year salute from the Medical News Letter staff.—Editor

NOTICE: See back cover for contents of this issue.—Editor

The issuance of this publication approved by the Secretary of the Navy on 4 May 1964.

U.S. NAVY MEDICAL NEWS LETTER



# Postoperative Pain

*LT J. C. Cottingham MC USN\*. From the Proceedings of the Monthly Staff Conferences, U. S. Naval Hospital, NNMC, Bethesda, Md. 1963-1964.*

The pathetically grim and perspiring patient, fearful of moving or breathing, has become a constant fixture in the postsurgical wards. His suffering was anticipated by his physicians and is accepted in the knowledge that it will disappear in time. This is the expected, the usual, and the inevitable postoperative pain—probably the most frequent and most neglected painful state in the hospital situation. A recent survey of narcotic practices in Jefferson Davis Hospital in Houston disclosed that two-thirds of all doses of narcotics dispensed for inpatients were used on the surgical services and, of these, three-fourths were used in the treatment of postoperative pain.

## The Philosophy of Pain

Pain—its existence and its fears—has had a profound effect on man's basic philosophy since earliest of civilization. In the third chapter of the book of Genesis it is noted that God said to Eve after the eating of the forbidden fruit: "I will greatly multiply thy sorrow and thy conception; in sorrow thou shalt bring forth children." Not only was the judgment of God for the committing of the original sin cast in the framework of bodily pain, but, so too have been the actions of rulers of states and others in authority toward those convicted of crime. Undoubtedly much thought has gone into devising means of producing pain in the interest of group justice.

Up until the middle of the 19th century, Aristotle's philosophic concept of "pain being the opposite of pleasure and the equivalent of unpleasantness" was accepted throughout the world. Then came the "law of specific nerve energies" set forth by Muller in 1840, which can be interpreted to mean that each sensory equality has its own specific sensory unit. The development of this concept has continued into the present day and upon it is based most of what we have been taught about sensations. Therefore, from Aristotle to the present, it has taken man 2,500 years to discard the mysticism associated with pain and finally approach the

subject scientifically. And it will probably take again that long to unravel the multitude of components which comprise the total pain experience of an individual.

## Pain Perception Vs. Reaction

Pain has two components: the original sensation, and the reaction to that sensation. Before we as physicians can prescribe analgesics, we must understand not only which of the two components or both that we are treating, but also how each varies among individuals.

Much work has been done to evaluate patient's pain threshold in the belief that individual suffering was related directly to the amount of pain stimulus. Beecher has shown that there is no correlation between pain threshold and the suffering experienced by the patient. A small dose of morphine which does not raise the pain threshold any more than a large dose of aspirin, is much more effective in relieving pain than the large dose of aspirin. Since the "perception" component in man is the principal site of action of analgesic drugs, the following are a few characteristics of perception of pain that are specific:

1. There is no constant, necessary, or proportionate relationship between perception of pain and the reaction to that perception.
2. Intensity of pain perception arising from a lesion is independent of the size or location of the lesion.
3. When two or more sources of pain stimuli exist coincidentally, perception is usually monopolized by the most intensive; it appears as if in competition for recognition by the central processing mechanism, one wins and is accepted and the others are more or less ignored. This may explain a patient's failure to complain of pain in one area such as the chest, when there is pain from another area such as the pelvis. This phenomenon is dependent upon apparent absence of summation. It is the basis for the device learned in childhood that the pain of sudden trauma, such as a bruise, can be alleviated by the institution of another, such as biting the lips.
4. Though perception is relatively constant, it is amenable to modification: by drugs and by powerful emotional states. Thus the recently badly-wounded may

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show little or no evidence of pain, not only because reaction is diminished or absent, but also because perception itself may be grossly disturbed. The patient, on questioning, may deny that he feels any pain.

Pain reaction in contra-distinction to perception is widely variable among different individuals, and in the same individual from time to time. It has no definite localized apparatus of function. It is a cognitive process and thus, being affective, is under the influence of the whole gamut of the patient's experiences, emotions and needs, as well as the environmental circumstances at the moment.

Although there is some objective evidence suggesting the existence of severe pain—(tachycardia, drawn facies, pallor, sweating)—reaction is largely immeasurable. The manifestation of reaction is the patient's complaints and his physical and mental responses; they constitute pain reaction.

Several important further characteristics of pain should be considered:

1. Pain varies widely in severity from time to time, and very severe pain does not persist unchanged for any protracted period. The pain of carcinomatoses is particularly prone to waxing and waning.

2. Occasionally, severe and intractable pain from a known causative lesion such as a malignant mass or from trigeminal neuralgia may cease abruptly for no demonstrable reason.

3. The presence of general disability, malnutrition, fatigue in any circumstance in which emotional stress or anxiety occurs makes the reaction to a given pain stimulus more marked or more difficult to treat.

4. Tolerance for pain is a highly individualized trait. It is dependent upon many factors: cultural, familial, environmental. It frequently appears to be influenced by the patient's concept of what kind of reactions are appropriate or expected of him in the circumstances at hand.

In a recent survey of 293 postoperative patients who were given alternate injections of normal saline and a narcotic in treatment of their pain, no less than 43.2 percent of the 293 doses of saline resulted in relief. (Each dose was given within 20 hours after major abdominal procedures.) This great power strongly supports the view that drugs are capable of altering subjective responses and symptoms, and do so to an important degree through their effect upon the reaction component of suffering. Beecher has reported the results of 15 separate studies involving over 1,000 patients in which placebos were found to have an average significant effectiveness of 35.2 percent. These figures are supported by dozens of other experiments showing that the usual reported figure of 26 percent effectiveness of placebos may actually be a conservative statement.

The "pharmacologic action" of placebos is not limited to pain relief. Beecher reports the following incidence of side reactions: dry mouth, 9 percent; nausea, 10 per-

cent; sensation of heaviness, 18 percent; relaxation, 9 percent; fatigue, 18 percent; sleep, 10 percent. He also reports patients developing rashes, angioneurotic edema, and constricted pupils, not only with the placebo, but also later with an injection of a narcotic.

Most postoperative patients are not consistent placebo reactors or non-reactors, at times obtaining relief from placebos and other times not. This introduces a temporal characteristic apart from basic personality characteristics, in determining placebo response. This temporal characteristic may be dependent upon such things as day or night, visiting hours, time from operation, and implication of the patient's disease. In comparing a group of consistent placebo reactors with a group who consistently failed to obtain pain relief from placebo, there have been found significant differences in the attitudes, habits, educational backgrounds and personality structure between the patients. Yet the placebo reactor could not be identified by the casual observer, but could only be delineated by extensive and careful psychologic techniques. These investigations are stimulating further studies on the effect of personality characteristics of drug action.

#### Characteristics of Postoperative Pain

There are many misconceptions among physicians as to the severity of pain which follows certain surgical procedures, and more especially as to the relative merit of various drugs in its relief. These "clinical impressions" are prevalent because nurses, not physicians, give the drugs for postoperative pain. Observations made by some nurses may be based on criteria which do not necessarily coincide with good medical practice. Much of what is believed to be known about postoperative pain is the result of such observations as recorded in nursing notes.

1. *Incidence.* Periodically, investigators who use postoperative patients for their studies re-discover that many patients do not have pain following surgery. Papper, Brodie, and Rovenstine found that 44 percent of their 237 postoperative patients failed to complain of pain. Included in this group were 108 patients who had intra-abdominal or intra-thoracic procedures, and of these, 27 percent did not complain of pain. Jaggard, Zager, and Wilkins found that 36 percent of 1,005 patients received no narcotics during the entire postoperative period. Keats reported 21 percent of 104 patients who had undergone either gastrectomy or colectomy received one or no dose of narcotics during the entire postoperative period. Papper, Brodie and Rovenstine found that 58 percent of patients having surgery of the superficial parts of the body did not complain of pain after operation, in contrast to only 27 percent for those having abdominal or thoracic procedures.

Pain is the postoperative patients chief complaint, but he may complain bitterly and primarily of symp-



toms such as sleeplessness, discomfort from gastric tube or oxygen catheter, sore throat, headache, backache, uncomfortable position in bed, bladder discomfort from indwelling catheters, tightness and weightiness of casts, or discomfort from shivering in an air-conditioned room. *These symptoms as primary complaints are responsible for 10 percent to 15 percent of all requests for medications, and narcotics are not required for their relief.*

2. *Duration. Pain of severity sufficient to require narcotics usually disappears within 48 hours after*

*surgery, with 87.4 percent of all doses of morphine following major intra-abdominal surgery being administered during this time. There is little need for narcotics after 48 hours. Exceptions to this usual time course are present in patients who develop certain surgical complications, as infection, and in patients who develop psychic dependence on the drug or the injection per se, or the associated care. Such exceptions are rare. Pain of lesser magnitude may persist for variable periods following operation and is readily controlled by non-narcotic analgesics.*

Frequency of Morphine Administration During 8-Hour Periods  
Following 60 Major Intra-Abdominal Surgical Procedures

	Hours Postoperatively							Total
	0-8	8-16	16-24	24-32	32-40	40-48	48+	
No. of patients	57	58	39	41	18	18	34	265
Percent of								
Narcotic Doses	21.5	21.9	14.7	15.5	6.8	6.8	12.8	100

Realizing that narcotics, as a rule, were necessary only during the first 48 postoperative hours, together with the knowledge that most prn narcotic orders were effective for the duration of hospitalization, Beecher and Keats at Massachusetts General Hospital attempted to estimate the magnitude of some of these abuses by comparing the amount of morphine a specific group of patients needs to the amount actually received. Thirty ward patients who had uncomplicated cholecystectomies by standard operative procedures under ether anesthesia were allowed to receive 10 mgm of morphine as often as every hour to control pain. They were kept comfortable at all times and given drugs for as long as necessary, postoperatively. For comparison, the hospital records of identical groups of ward, semi-private, and private patients were randomly collected and the amount of postoperative morphine they received was tabulated. The mean doses of morphine per patient (+ standard error) following cholecystectomies in these four groups were as follows:

Ward group studies	— 3.2 + 0.4
Ward group, hospital records	— 5.6 + 0.4
Semi-private group, hospital records	— 9.8 + 0.7
Private group, hospital records	— 13.4 + 1.2

When these data were broken down into time intervals following operation, it was found that in the private group 40 percent of the total narcotics were administered more than 48 hours following surgery. Although there are many psychosocial implications in these data, the authors of these reports attributed the prolonged administration of narcotics to nursing practices. For example, some nurses who were interviewed said they were taught that every postoperative patient must have two doses of morphine during the first post-

operative night. Some nurses routinely give all postoperative patients a narcotic at 11:00 p. m. to guarantee a quiet night and time for manipulating their Cardex.

3. *Patient Variables.* Efforts to correlate severity of postoperative pain with certain characteristics of the patients themselves have been largely unsuccessful. Most researchers have been unable to correlate the degree of postoperative pain to age, sex, type of anesthesia, duration of anesthesia, previous medical history, previous surgical history, previous hospitalizations, obvious personality types, noticeable personality disorder, or presence of preoperative pain. Pain following surgery seems to be random with regard to obvious patient characteristics.

#### Treatment of Postoperative Pain

Parenteral injections are the accepted route of drug administration to the postoperative patient. Oral analgesics are not ideal because the disturbances of gastrointestinal function so common following operation, result in unpredictable drug absorption. Most analgesics are ineffective via the oral route; the ineffectiveness of morphine by mouth has been noted by many observers, although this fact is still not generally appreciated. Beecher and Keats found that when 10 mg of morphine, 60 mg of codeine, 300 mg of aspirin, and 600 mg of aspirin were given orally to postoperative patients, the only effective analgesic was 600 mg of aspirin. Neither morphine nor codeine could be distinguished from a placebo under these circumstances.

Parentally, no drug which has been adequately studied has been found to produce the analgesia of morphine with less side reaction than morphine. Based on current information, all available narcotics with the

exception of codeine, will produce adequate postoperative analgesia if given in equivalent dosage, and at this dose the same side actions might be expected as with morphine. (The analgesic potency of codeine does not equal that of morphine, even 120 mg, and at this dose, codeine is a potent respiratory depressant.)

The dose-response curve, characteristic of drug action in general, applies to the analgesic properties of narcotics. An optimal dose can be determined, exceeding which further increase will not result in proportional increase in analgesia. For morphine in postoperative pain, the dose is 10 mg (1/6 grain) per 70 Kg of body weight. The significant increase in side reaction, such as nausea, vomiting, and respiratory depression, occurs at higher doses in return for small additional analgesia.

Relationship Between Dose of Morphine  
and Incidence of Analgesia  
Greater than Placebo

Dose per 70 Kg of Body Weight	No. of patients	No. of doses	Percent Analgesic Doses Greater than Placebo
5	56	109	25.7
10	38	71	35.2
15	31	59	37.3
20	18	40	37.5

Pain occurring earlier in the postoperative period is more difficult to relieve than that occurring after 24 hours. Effective pain relief as compared to order of doses, shows only 63 percent relief from the first dose with the effectiveness progressing to 89 percent by the fourth administration postoperatively.

Incidence of Pain Relief by Morphine  
According to Order of  
Postoperative Doses in 198 Patients

Dose No.	1	2	3	4+
No. of Administrations	198	119	55	37
Percent Analgesic Doses	62.6	84.0	87.3	89.2

The generally accepted comparison, mg for mg is that morphine is 10 times as potent as demerol, although 10 mg of morphine probably gives more profound analgesia than 100 mg of demerol.

Survey of records from our hospital pharmacy reveals the following statistical relationships between morphine and demerol. For dosage comparison, figures were compiled on the analgesic equivalent of 10 mg of morphine = 100 mg of demerol.

1. In the multiple dose vials, demerol costs almost twice as much as morphine (\$0.05 per dose vs. 2½¢ per dose).

2. In the Tubex the same ratio is found (21¢ for demerol vs. 12¢ for morphine).

3. On the general surgical services (Wards T-12, 8-C and 4-C) 3½ times more demerol is used than morphine.

4. In the recovery room, morphine is used twice as frequently as demerol.

5. Considering all surgical services, demerol and morphine usage is about equal.

A review of the concepts and characteristics of pain has been presented as a background for the discussion of postoperative pain relief. In summary, not all postoperative patients have pain. For those who do, the amount of suffering relieved will depend on the intelligent use of available drugs, good nursing care, and a consideration of the psychologic needs of the patient.

#### SNAIL INVESTIGATION CENTER FOR THE AMERICAS

Under an agreement between the Brazilian Ministry of Health and the Pan American Sanitary Bureau, which acts as the WHO Regional Office for the Americas, a Schistosomiasis Snail Identification Center has been set up at the National Institute for Rural Endemic Diseases, Belo Horizonte, Brazil.

The incidence of schistosomiasis or bilharziasis, unlike that of most communicable diseases, is increasing. It already affects some five million people in the Americas and is becoming an important health problem in a number of countries and territories, including Brazil, the Dominican Republic, Puerto Rico; St. Lucia,

Surinam, Venezuela, and other Caribbean countries. In some tropical areas whole villages are affected.

Research workers at the Center will investigate how snails live, their breeding habits, the diseases that affect them, the birds and animals that prey on them, etc. Such research may eventually lead to the eradication of bilharziasis from the Americas and a better life for millions of people.—WHO Chronicle 18(3): 103, March 1964.

#### CANCER IS NOT CONTAGIOUS

Don't fear cancer; do something about it.

U. S. NAVY MEDICAL NEWS LETTER



## MOBILE EMERGENCY CART FOR INTENSIVE CARE WARD U.S. NAVAL HOSPITAL, NEWPORT, RHODE ISLAND

*CAPT Alexander C. Hering MC USN, LT Gordon I. Goldstein MC USNR, LCDR  
Doris M. Sterner NC USN.*

An intensive care ward functions well when there is a minimum of confusion and a maximum of efficiency. Toward this end the idea of supplies-in-motion rather than people-in-motion developed.

A standard, wheeled dressing cart (Fig. 1) became available from on-board stocks when two examining rooms were combined. Hospital carpenters fabricated drawers and shelves of plywood, labelled in startling

red and black, to fit accurately in the cart, (Fig. 2). The smaller shelf labels read:

cardiac arrest tray  
adult tracheotomy tray  
pediatric tracheotomy tray  
cut-down tray

I.V. solutions, polyethylene catheters, antiseptic, "Ambu" resuscitator and a chart showing closed chest



FIGURE 1

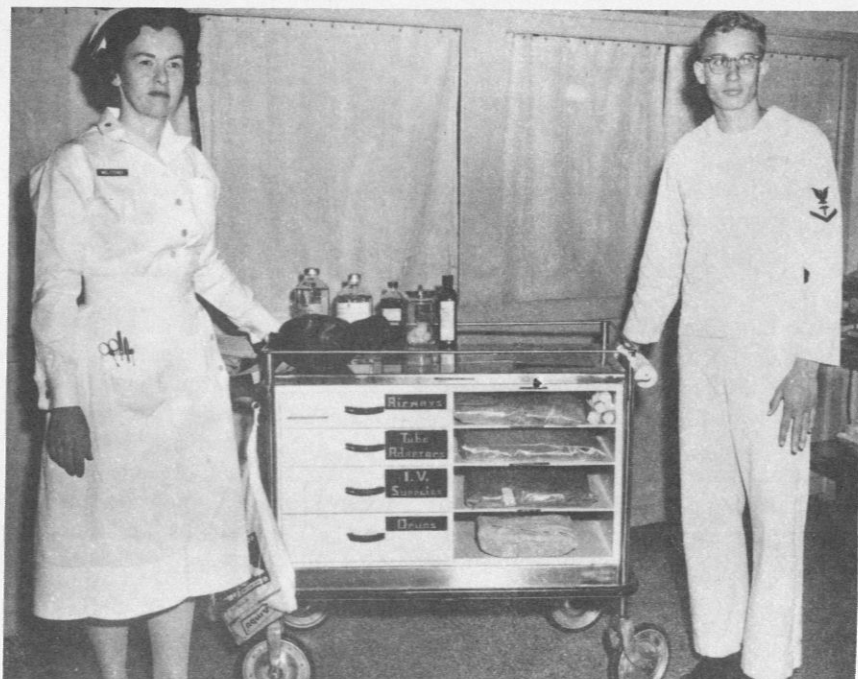


FIGURE 2

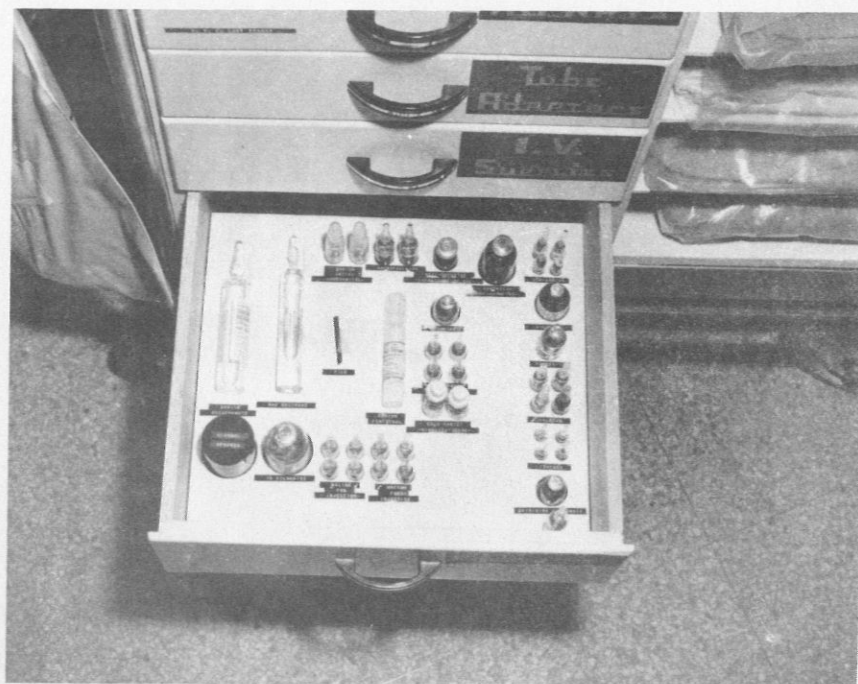


FIGURE 3



resuscitation are positioned on the top surface of the cart. The sterile trays are enclosed in heavy plastic bags, which obviates the necessity of frequent resterilization. Tests have shown the trays to be sterile six months or longer. These plastic bags (originally new linen wrappings) were contributed by the hospital linen room civilian supervisor, and were the subject of a *Beneficial Suggestion*.

The *AIRWAYS* drawer contains oropharyngeal airways, laryngoscopes (infant and adult), endotracheal tubes, (infant and adult), mouth-to-mouth plastic artificial respiration airways, nasopharyngeal packs and Fox balloons.

The *TUBE ADAPTERS* drawer contains a set of labelled multi-colored plastic connectors, as well as appropriate metal and crimped rubber fittings, for ready attachment of resuscitative or positive-pressure devices to endotracheal tubes or tracheostomy tubes.

*I.V. SUPPLIES* drawer contains needles, tubing sets, tourniquets, alcohol sponges, syringes.

The *DRUGS* drawer (Fig. 3) contains the following sterile vials and ampules:

sodium bicarbonate	hydrocortisone
50% dextrose	aminophylline
sodium pentothal	neosynephrine
sodium amytal	adrenalin
xylocaine	Cedilanid
saline and water for injection	atropine
Wyamine	pronestyl
Solu-cortef and Solu- Medrol	calcium chloride
	Isuprel
	quinidine

Certain theoretical advantages of such a cart were augmented by practical advantages which showed themselves over the ensuing 12 months:

1. *Centralization of emergency supplies* in a small, compact unit freed a space occupied by a large, cumbersome stock shelf.
2. The use of plastic bags lightened the re-sterilization chore in the Intensive Care Ward and further demonstrated the concept of *prolonged sterile packaging*.
3. The well-labelled mobile cart, always located in the same place near the nurse's station, provided a conversation piece for the ward staff and became a *practical teaching aid* for corpsmen, nurses, and doctors.

#### Acknowledgements

LCDR Doris M. Sterner NC USN\*, the Intensive Care Ward Supervisor is shown in Fig. 1 at the helm of the *USS LAST CHANCE*. HM3 Bennie Trent, also shown in Fig. 1, was at the time Enlisted-Man-of-the-Month as a result of his fine performance of duty on the Intensive Care Ward.

The contents of the *DRUGS* drawer resulted from combined suggestions from the Departments of Medicine, Surgery, and Anesthesiology.

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\* Currently assigned to BUMED on TAD from BUPERS.

#### Reference

Haynes, Lewis L., CAPT MC USN and Harrington, Phyllis, LCDR NC USNR. *Three Years' Experience With Intensive Treatment and Recovery Unit in Medicine and Surgery*. Military Medicine 125: 398-402, June 1960.

## FROM THE NOTE BOOK

### SUMMARY OF RECENT CHANGES

#### IN MEDICAL TRAINING PROGRAMS

1. Ensigns (1915) (students in medical school) can now apply for the Senior Medical Student Program and the Naval Intern Program by mail. *They are no longer required to visit recruiting stations in person for interviews or for physical examinations. Application kits are mailed to the students from BuMed.*

2. Students in the Senior Medical Student Program now receive the full pay and allowances of an Ensign during the entire senior year, providing they remain engaged in school approved elective work. Previously, students who took elective work in lieu of vacation

were placed on leave, or leave without pay, during such periods.

3. The intern watch schedule in all naval training hospitals has been changed for weekdays and weekends to one out of three or better. With more free time interns will have greater opportunities to pursue the academic aspects of their training.

4. *Navy residents are now offered the opportunity to request retention at their naval hospitals for an additional year after training, in order to better prepare for their American Board examinations.* This opportunity is offered where no practice time is required to qualify for the examination. Favorable consideration will be given to such requests, depending upon the demands of the service.—Medical Corps Branch, Professional Division, BuMed.

### THREE NAVY DOCTORS WIN AWARDS AT ARMED FORCES OB-GYN SEMINAR

The Thirteenth Annual Armed Forces Seminar on Obstetrics and Gynecology, held at Andrews Air Force Base 26-29 October 1964, was a well-attended, resounding success. The host service, the United States Air Force Medical Corps, is to be thanked and congratulated. Three prizes awarded at this seminar were won by doctors in the United States Navy Medical Corps.

The Robert A. Kimbrough Award for the best resident paper of the meeting was given to LCDR A. C. Rolan MC USN, United States Naval Hospital, Oakland, California, for his paper on the "Rudimentary Uterine Horn, Obstetrical and Gynecological Implications." The Host Award for the paper originating from work carried out in a small hospital without a teaching service was won by LCDR Istvan Nyirjesy MC USN, United States Naval Station Hospital, Naples, for his paper on "Obstetrical Factors in Mental Development." Both the X-ray Contest and an Endocrinology Contest, conducted during the meeting, were won by LT Thomas C. Rowland MC USN, United States Naval Hospital, Bethesda, Md., where he is a third year OB-GYN Resident.—From: CAPT D. M. Shook MC USN, Head of Training Branch, Professional Division, BUMED.

### DR. KAZMIERSKI FIRST WOMAN OPTOMETRY OFFICER IN THE NAVY

Anne P. Kazmierski, O. D., a June 1964 graduate of the Massachusetts College of Optometry, valedictorian of her class, has accepted an appointment as Ensign, Medical Service Corps, USNR (W). Dr. Kazmierski is the first woman optometry officer in the Navy and has already reported to the U. S. Naval Base, Newport, Rhode Island, for Indoctrination Training. Upon completion of the course at Newport, Dr. Kazmierski will receive further indoctrination at the U. S. Naval Hospital, Bethesda, Md., before reporting to her assigned duty station at the U. S. Naval Hospital, Oakland, California.

### HOSPITAL CORPSMEN DEMONSTRATE VALUE OF "INTENSIVE CARE" TRAINING

On 23 September 1964, William C. Cato, Storekeeper Second Class, attached to the destroyer USS MYLES C. FOX, was admitted to the Boston City Hospital for

a severely crushed chest and twelve broken ribs, following an automobile accident. He was placed on the Danger List and required the use of suction apparatus, respirator, and an emergency tracheotomy to permit adequate breathing. His condition precluded movement to the nearby Chelsea Naval Hospital for thirteen days. The attending physician recommended 24 hour nursing coverage and asked if the Navy could provide this due to the shortage of nurses. Chelsea Naval Hospital could not provide nurses, but did send three Hospital Corpsmen specially trained in intensive care. The Commanding Officer of this hospital was notified and a 24 hour medical watch by three Hospital Corpsmen from his Staff was commenced.

The corpsmen were transported from the Chelsea Naval Hospital to the Boston City Hospital and were returned after a watch period of approximately ten days.

SK2 CATO is now a patient at Chelsea Naval Hospital and improving steadily, although still on the Serious List (as of this writing). The Administrative Supervisor of the Dowling Building, Boston City Hospital, expressed gratitude for the competence of these Corpsmen and the professional manner in which they cared for their patient at all times.

In performing this 24 hour coverage with nursing care, Jay A. Decatur, Hospitalman, USN; James J. Merryweather, Jr., Hospitalman, USN; and Leopold F. Sitnik, Jr., Hospitalman, USN, demonstrated the time honored tradition that the "NAVY TAKES CARE OF ITS OWN".—Submitted by CAPT L. L. Isert MSC USN, Administrative Officer, USNH, Chelsea, Mass.

### AMERICAN BOARD CERTIFICATIONS

#### *American Board of Obstetrics and Gynecology*

LCDR James A. Austin MC USN

LCDR John D. Manhart MC USN

#### *American Board of Pediatrics*

LCDR Richard L. Rogers MC USN

#### *American Board of Preventive Medicine*

LCDR Charles E. Alexander, Jr. MC USN

#### *American Board of Surgery*

LCDR Francis E. Banich MC USNR

LCDR John Richard Campbell MC USNR

LCDR Joseph T. Mullen MC USN

LCDR William J. Storz MC USNR

### COST OF CANCER

Each year cancer deprives the national economy of 50,000 man-years of productivity. Since cancer often strikes in the later years, many of its victims are highly trained, skilled personnel. The dollar loss is inestimable. The annual hospital bill for cancer is estimated to be over \$400,000,000.

### CANCER SELDOM CAUSES PAIN IN THE EARLY STAGES

In nearly every cancer case there is a time when the cancer, if it is detected, may be cured. This is usually the "silent stage".



# A Look at Our U.S. Naval Hospitals— Bremerton, Washington\*

(Third in a Series)

This Naval Hospital is the only one in the Thirteenth Naval District. It occupies 25 acres of land, situated on the north central edge and within the confines of the Puget Sound Naval Shipyard, overlooking the Shipyard and Sinclair Inlet. The Shipyard adjoins the City of Bremerton.

The principal buildings of the hospital are of old English Colonial architecture, of brick and masonry construction, in a setting of spacious lawns, flower gardens, and tall fir trees. From the hospital grounds may be seen the snowcapped Olympics and other scenery of beauty.

The site for the Shipyard was purchased in 1891 and on September 16 of that year the "Puget Sound Naval Station" was established. The first Medical Department activity of the station was quartered in the USS NIPSIC, a small gun boat. On 4 November 1901, the Medical Department activities were transferred from the NIPSIC to a frame building ashore. On 25 January 1903, these sick quarters were designated by the Secretary of the Navy as a Naval Hospital. This marked the commissioning of the first naval hospital in the Northwest area.

During the year 1905, talk of a new hospital had begun and the present site had been selected. Money was appropriated by Congress and plans for the new hospital were completed in 1907. The contract for construction of the hospital, at a cost of \$143,971, was awarded 29 May 1909. The specifications provided for three buildings: a three-story and basement administration building; a two-story and basement subsistence building; and a two-story and basement ward building; all to be connected by solarium.

These buildings, which today constitute the hospital proper, were completed on 27 January 1911; however, as no appropriation had been made for equipment for the hospital at that time, it was not until 1 January 1912 that the new hospital was occupied.

On 8 November 1920, the Recreation Building, which was constructed by the American Red Cross, was com-

pleted; and it was turned over to the hospital on 4 December of that year. In June of 1920, the present WAVE Quarters was completed; but this building was designated originally as the "Nurses' Quarters." One wing in 1922 and another in 1923 were added to our permanent group of hospital buildings.

In May 1923, ground was broken for a new brick two-story apartment house which was to contain four apartments for medical officers of the staff; and the foundation was laid in August 1923 for quarters for the Commanding Officer. During the year 1925, construction was begun on two sets of quarters designated as "Pharmacist Quarters." These seven sets of quarters are the same ones and the only ones the hospital has today.

A plan for the further development of the hospital was proposed in 1928. It included construction of additional wings to the hospital group, a new Hospital Corps quarters, and a maintenance utility building which was to include space for a garage, machine shop, paint shop, electrical shop, and plumbing shop. The wing of the permanent group was started in 1931; the utility and garage building was constructed in 1936; the Hospital Corps Quarters was completed in 1937; and in 1939 the wing was added.

On 7 December 1941, it was very apparent that the hospital must expand and, shortly thereafter, wartime construction began. In 1942, the Sick Officers' Quarters and a permanent wing were constructed. Also, three "temporary" ward buildings (now designated as Ward O, Ward P, and Dependents' Clinic) were completed. The laundry building was completed in 1944.

During the war years, 1941 to 1945, a peak patient load of 1041 was reached on 21 August 1944. During the Korean Campaign, from June 1950 to July 1951, there were over 17,000 admissions to the hospital with almost a half million patient days; and the authorized bed capacity varied from 750 to 375. Since then the authorized bed capacity has been reduced from 375 in 1956 to 300 in 1958, 250 in 1959, 225 in 1960, 200 in 1961, 175 in 1963, and 150 in 1964.

Background data of the hospital would not be complete without some history of the City of Bremerton.

\* Submitted by CAPT J. E. Gorman, MC USN, Commanding Officer.



U.S. NAVAL HOSPITAL—BREMERTON, WASHINGTON  
*Official U. S. Navy Photograph.*

The people of Bremerton have always taken great interest in the Navy. They are highly conscious of dependence upon the civilian employees of the Shipyard and service personnel, on duty aboard ships and stations in the area, for support of both business and Government. A large percentage of the residents are retired military and civil service personnel.

Bremerton was platted in 1891 and named for the owner of the greater portion of the land, a Mr. Bremer. Early Bremerton had few stores, but many saloons and restaurants. It was familiarly known as "Mud Town." The growth of Bremerton was slow; and it was not until 1912 that the first streets were paved. In 1918 and 1927, the City added considerably to its area and population by annexations. But World War II caused a three-fold expansion in residential areas and business enterprises due to the influx of workers and servicemen; and the population reached 31,000. There has been a fluctuation since that time and the population at present is about 32,000.

#### STAFFING

The medical and dental officer staff includes specialists qualified or certified in the following clinical fields:

Internal Medicine  
Dermatology  
Neuropsychiatry  
General Surgery  
Anesthesiology  
Urology  
Orthopedics

Ophthalmology  
Otolaryngology  
Oral Surgery  
Obstetrics & Gynecology  
Pediatrics  
Radiology  
Pathology

In the para-medical area, our officer staff includes an optometrist, physiotherapist, pharmacist, and representatives of various nursing specialties and administrative fields.

The nursing service includes both military and civilian personnel.

The enlisted staff includes all the technicians necessary to support the specialists indicated above as well as the general duty hospital corpsmen.

#### RECENT DEVELOPMENTS

The public works functions of the U. S. Naval Hospital, Bremerton, were consolidated with those of the Puget Sound Naval Shipyard on 1 July 1963. An Emergency/Service Work Center is maintained.

A central dictating system of 19 stations with 4 recorders was placed in operation in July of 1963.



The inventory of the Professional Library has been expanded to include professional reading material and references for staff officers other than medical officers alone.

The most recent improvement made was the installation of a new 31-station radio paging system.

#### WORKLOAD DATA—FISCAL YEAR 1964

Inpatients	Peak census .....	165
	Admitted: Active duty	1178
	Dependents	1387
	Other	437
	Total .....	3002
	Surgical operations .....	1000
	Surgical procedures .....	3511
	Discharges .....	2997
	Average occupied beds.....	126.4
	Average length of patient stay.....	15.18
Outpatients	Active duty	21860
	Dependents	44892
	Other	13864
	Total .....	80616
	Immunizations .....	8461
Births	.....	378
Prescriptions Filled		
	Inpatient	21955
	Outpatient	58781
	Total .....	80736
Rations		
	Served	74386
	Cost per ration \$1.1278	

#### PHS CAMPAIGN AGAINST AEDES AEGYPTI

The Public Health Service recently began a 5-year program to eliminate the yellow fever mosquito *Aedes aegypti* from the United States. Congress appropriated \$3 million to support such efforts in fiscal year 1964.

*Aedes aegypti* is present in Florida, Georgia, Alabama, South Carolina, Texas, Tennessee, Mississippi, Louisiana, Arkansas, Puerto Rico, and the Virgin Islands. Although the United States has not had an epidemic of yellow fever since 1905, the disease is present in parts of Central and South America, and in the Caribbean area there have been extensive outbreaks of dengue fever, which *Aedes aegypti* also carries.

The eradication program administered by the Communicable Disease Center in Atlanta, Ga., is part of an international endeavor to eliminate the mosquito from the Western Hemisphere.—Public Health Reports 79(5): 391, May 1964.

#### TRAINING COURSE FOR CHIEFS OF NATIONAL MALARIA SERVICES

Fifteen senior officials from the malaria Services of countries in the WHO Western Pacific and Eastern Mediterranean Regions attended a special 10-day training course in malaria epidemiology at the Malaria Eradication Training Centre in Manila in June 1964.

Among the trainees were chiefs of malaria eradication services in Korea, Laos, Sudan, and Viet-Nam. Other trainees came from China (Taiwan), Japan, Pakistan, the Philippines, and Sarawak.

The Malaria Eradication Training Centre is a joint enterprise of the Government of the Republic of the Philippines, the U. S. Agency for International Development, and WHO.—WHO Chronicle 18(9): 358, September 1964.



## DENTAL SECTION

### EVALUATION OF DIRECT AND INDIRECT PULP CAPPING

*Roland R. Hawes, Joseph DiMaggio and Fayez Sayegh, Eastman Dental Dispensary, Rochester, New York. Jour Den Res 43(5)Part II: 807-808, Sept-Oct 1964.*

This report presents observations lasting from 2 weeks to 4 years of teeth treated by indirect pulp capping, direct pulp capping and pulpotomy. Teeth to be treated were assigned randomly to each treatment group after clinical examination indicated a deep carious lesion and a vital pulp. Teeth with symptoms suggestive of pulpitis were not included. Calcium hydroxide-methyl cellulose paste was applied over pulp tissue or residual carious dentin, followed by a base of zinc phosphate cement or accelerated zinc oxide-eugenol and a permanent restoration in a single sitting. A total of 1,048 teeth have been treated, 475 by indirect pulp capping, 484 by direct capping, and 89 by pulpotomy. During the period of observation less than 3 per cent of indirect pulp cappings have resulted in frank clinical failures, whereas 7 per cent of direct pulp cappings and 19 per cent of pulpotomies have resulted in such clinical failures. Radiographic evaluation reveals significantly higher incidence of periradicular radiolucence and abnormal primary root resorption in all treatment groups but does not significantly reduce the advantage in favor of indirect pulp capping. This is believed valid even when 25 per cent of the successful indirect pulp cappings are disallowed because it is probable that only 75 per cent of these treatments were done on teeth with exposures. Histological study of 314 teeth, 105 after indirect and 180 after direct pulp capping, and 29 after pulpotomy also indicated a higher failure rate than was indicated by clinical and radiographic examination in all groups. However, these observations do not significantly reduce the advantage of the indirect pulp-capping procedure. Simple bacteriological culturing of dental scrapings from selected teeth, reopened at varying times after treatment, suggests the persistence of cultivable organisms for prolonged intervals following both types of pulp treatment.

*Editors note:* This article brings strong confirmation to the policy of the Chief of the Dental Division, Bureau of Medicine and Surgery, published in U. S. Navy Medical News Letter 43(12): 22, June 19, 1964.

### THE ORAL TISSUES RESPONSE TO ULTRASONIC INSTRUMENTATION

*CDR G. H. Green DC USN and LCDR A. D. Sander-son DC USN. NDS Special Report No. 1, Oct 1964.*

This report consists of a thorough review of the published literature on the use of ultrasonic instrumentation in periodontal applications. The authors report that although no significant biological changes in humans, monkeys, or dogs have been reported when dental ultrasonic techniques were applied in the manner currently in clinical use, numerous investigators have demonstrated that severe, irreversible tissue damage can occur if considerable care and skill are not exercised. However, the same findings are also applicable to the use of the more conventional rotary dental instruments. The application of constant hard pressure, for instance, will result in tissue damage whether the application is by means of the ultrasonic instrument or of low-speed rotary instruments. Tissue damage will also occur with either ultrasonic or high-speed rotary instruments if a water coolant is not properly used. The damage resulting from ultrasonic procedures is considered to be from the effects of frictional and absorbed heat rather than from any mysterious energy produced by ultrasound.

Based on this evidence, the authors concluded that the ultrasonic unit is an excellent adjunct to periodontal therapy in that it provides more rapid and efficient removal of gross deposits of calculus than can be attained with hand instruments. The evidence would also indicate that this equipment could safely be used for the more rapid removal of supragingival calculus, not only by properly trained dentists, but also by carefully trained and supervised auxiliary personnel.

### THERMAL CONDUCTIVITY OF RESTORATIVE MATERIALS AND CAVITY LINERS

*Hollenback, George M. and Sullivan, Maxwell. 5255 Encino Ave., Encino, Calif., Jour South Calif Den Assoc 32: 208-213 July 1964. Dental Abstracts 9(10): 632 October 1964.*

For years dentists have used various types of cavity liners and restorative materials in the belief that they had thermal insulative qualities that would protect the



pulp against overstimulation caused by temperature changes. Although clinical experience indicates that such cavity liners and materials do protect the pulp from various types of stimuli, tests of seven restorative materials and a dental varnish show that the thermal insulative properties of some materials are less than commonly believed.

A number of special instruments were designed to ascertain the thermal conductivity of dental varnish, whale dentin, zinc phosphate cement, zinc phosphate cement plus 50 per cent (by weight) alloy fillings, zinc oxide-eugenol, silicate cement, self-curing acrylic resin, cast gold and amalgam. The apparatus included two water baths, a pyrometer and thermocouple, and an instrument which permitted all specimens to be made in the same dimension with a tubular cavity in the center of each specimen.

The best thermal insulator of all materials tested was whale dentin. The next best thermal insulator was self-curing acrylic resin; however, probably the deleterious properties of this material would preclude its use as a thermal insulative material.

Dental varnish—even when used in six coats—does not seem to possess any significant thermal insulative properties.

Of two amalgam specimens, the specimen with all possible excess mercury expressed before condensation had appreciably less conductivity (that is, greater thermal insulative value) than the amalgam specimen prepared to a 50:50 ratio of mercury and alloy without mercury expressed.

The addition of alloy filings to the zinc phosphate cement slightly increased the thermal insulative properties of the cement.

Cast gold had twice the insulative value of 1:1 ratio amalgam. Self-curing acrylic resin had twice the insulative value of cast gold.

*Editor's comment:* There is risk here that a hasty reader might conclude that use of cavity liners is unimportant. To the contrary, with modern high-speed cutting including adequate air-water spray, the use of a varnish to seal the freshly cut dentinal tubules is highly important. (Stanley, H. R. JADA 63: 749-766, 1961).

## OBJECTIVES OF DENTAL EDUCATION

*Jour Den Education 27(3): 206-207 September 1964.*

The Committee on Curriculum of the American Association of Dental Schools developed the following statement on the objectives of dental education. These objectives are reprinted in the *News Letter* to obtain a wider reading audience in order to stimulate efforts by all dental officers toward a total accomplishment of these goals.

The colleges, faculties, and schools of dentistry of the United States and Canada are integral parts of

great university complexes which have as one of their major objectives the education of men and women for careers in all of the health services in order best to meet the national need.

Dentistry, while traditionally maintaining its strong orientation to medicine and the other health sciences, has an autonomous system of education whose professional standards are essentially derived from policies established by the organized dental profession.

Dental education has strong roots in the basic sciences, and dental teaching is continually enriched by the services of many persons from other health and scientific disciplines. Dental education is also premised on an awareness of the national culture and its heritage. Thus, by this combination, dental education strives to give its graduate an understanding of the totality of human health and personality which will enable him to fulfill usefully his own career in dentistry.

Dental education recognizes its responsibility in providing a sufficient number of educated persons so as to guarantee the maximum levels of dental health service which are consistent with the philosophy and resources of the country and all of its citizens. Dental education believes in the right of all persons to receive competent health service and, in the national tradition, the ultimate objective must be to make all health service, including dental health care, an essential and desired part of the national standard of living. These challenges of man and society to the dental profession can be met only by continuing achievement and renewal of the following objectives of dental education:

1. To select students from all walks of life who are intellectually, morally, and physically qualified for a career of service to the public in dentistry.
2. To provide an academic environment for these students which will stimulate and enlarge both their appreciation and understanding of the philosophic, social, and intellectual problems of the day.
3. To instill in them the knowledge of the arts and sciences which will enable them to practice dentistry so as to provide a competent service to the public and lifelong satisfaction to themselves.
4. To emphasize the orientation of the dental student to the physical and biological sciences which the practice of modern dentistry involves.
5. To provide the clinical training and experience which are essential in the provision of a competent oral health service to the patient.
6. To foster knowledge of the value, design, and methodology of dental education so that the dentist may evaluate research findings and apply them rapidly and competently in his own practice.
7. To educate auxiliary personnel for the dental profession so that they will be competent in the discharge of the duties which are delegated to them by the dentist and which are carried out under his direction, thus

enlarging the dentist's capacity to render an efficient oral health service.

8. To offer graduate and postgraduate educational programs in the basic, dental, and clinical sciences as a means for enlarging the general competence of the dentist in all fields of practice and for providing the advanced education and clinical experience which are the essential basis for the limitation of practice to dentistry.

9. To make conformance to the letter and spirit of the principles of ethics an unquestioned part of professional life.

10. To insure that teaching is frequently renewed

with new ideas, methods, and personalities to the end that it meets the changing needs of the student and of the society in which he will live and serve.

11. To enlarge the horizon of particularly well-qualified students so that they will scan the possibility of future careers in dental research, education, administration, and dental public health.

12. To develop the potentialities of the dental graduate for leadership in his profession and his community.

13. To bring conviction to every dental graduate that his dental education will serve him well only so long as he refreshes and renews it through lifelong, continuing education.

## PERSONNEL AND PROFESSIONAL NOTES

### *Season's Greetings*

There are many ways to observe the anniversary of Christ's birth and the beginning of the New Year. In whatever manner you celebrate this season, I hope this one will be the most meaningful and joyful yet. There is a word in the Greek language, "agape", which means all that is exemplified by the brotherly love and warmth for fellow man which come to each individual during this season. Every year, when this "agape" spirit makes each greeting a joy, I hope for a continuation of that deep feeling throughout the year. Let us make this our resolution for the coming year.

I wish you a very Merry Christmas and a Happy New Year!

F. M. KYES  
Rear Admiral, DC, USN

*Naval Research Group Studies Low Temperature Phosphorescence of Calcified Tissue.* CDR Kirk C. Hoerman DC USN, Dental Department, Naval Medical Research Institute, National Naval Medical Center, Bethesda, Maryland, delivered a paper, "Afterglow of

Proteins in Non-Aqueous Media," at the 14th Annual Instrument Symposium and Research Equipment Exhibit, Clinical Center Auditorium, National Institutes of Health, Bethesda, Maryland, October 7, 1964.

In a BuMed sponsored research subtask on the organic components of enamel and dentin, CDR Hoerman is using fluoromicrophotometry for quantitative fluorescence and phosphorescence analyses of heretofore obscure protein molecules of especially low solubility. Collaborating with CDR Hoerman in this research are Miss S. A. Mancewicz and Mr. A. Balekjian, who are Research Associates of the American Dental Association, and are at the Naval Medical Research Institute in the capacity of Guest Scientists. Further information on this work may be found in "Phosphorescence of Calcified Tissue," by Hoerman, K. C. and Mancewicz, S. A., Arch Oral Biol, August 1964.

*Navy Dental Corps Participation at ADA Convention.* The following U. S. Navy Dental Corps contributions were made to the 105th Annual Session of the American Dental Association held in San Francisco, California, 9-12 November 1964.

## VIDEO TAPES FOR CLOSED CIRCUIT TELEVISION

RADM F. M. KYES DC USN  
Chief, Dental Division BuMed

CAPT. H. W. LYON DC USN  
NMRI NNMC Bethesda, Maryland

Mass Application of Stannous Fluoride  
Cariostasis in Naval Personnel

Factors Affecting Healing of  
Extraction Defects



CAPT G. H. ROVELSTAD DC USN  
NDS NNMC Bethesda, Maryland

CAPT F. G. GROSSMAN DC USN  
NDS NNMC Bethesda, Maryland

CDR K. C. HOERMAN DC USN  
NMRI NNMC Bethesda, Maryland

LCDR J. S. LINDSAY DC USN  
NDS NNMC Bethesda, Maryland

LCDR W. R. COTTON DC USN  
NMRI NNMC Bethesda, Maryland

Need for Clinical Research

Preventive Dentistry

Protective Qualities of Maximal-Stimulated Saliva

Emergencies in the Dental Office

Application of Radioisotopes in Pulp Studies

#### TABLE CLINICS

LCDR J. F. HARDIN DC USN  
Naval Hospital, Oakland, California

LT K. L. COTTLE DC USN  
NavDept Dispensary Wash., D.C.

Mucogingival Surgery

Temporary Acrylic Bridge and Inlay Technic

#### PANEL MODERATOR

CAPT A. R. FRECHETTE DC USN  
CO USNDS NNMC Bethesda, Md.

Immediate Dentures

#### ESSAYS

CAPT A. R. FRECHETTE DC USN  
CO USNDS NNMC Bethesda, Md.

CAPT F. L. LOSEE DC USN  
NavTraCtr Great Lakes, Ill.

CAPT F. J. KRATOCHVIL DC USN  
NDS NNMC Bethesda, Md.

CAPT P. C. ALEXANDER DC USN  
NDC Long Beach, California

Complete Denture Stability as Related to Tooth  
Form and Position

Geographic Distribution of Caries, Cancer and  
Coronary Disease

A Complete Denture Technic for  
Selecting and Setting-up Teeth

The Periodontium and the Cuspid Protected  
Occlusion

#### SCIENTIFIC EXHIBIT

Local Anesthesia in Dentistry  
Monitored by:

CAPTS. S. E. TANDE DC USN and  
J. B. LEPLEY DC USN  
NDS, NNMC, Bethesda, Maryland

#### MOTION PICTURE FILM FESTIVAL PANELIST

CAPT S. E. TANDE DC USN, NDS, NNMC, Bethesda, Maryland  
U.S. NAVY DENTAL TRAINING FILMS (PREMIER SHOWING)

MN-9727 Peridontal Disease: Prevention and Early Treatment

MN-9739 Immediate Denture Service: Coordinated Management

MN-9868 Preventive Dentistry: The Prevention of Oral Disease

MN-9773 Surgical Endodontics

MN-9774 Intraoral Roentgenography: Improved Equipment and Techniques

RADM E. G. F. POLLARD DC USN, Director Dental Activities, FIFTH Naval District, served as Delegate and  
CAPT J. J. DEMPSEY DC USN, TWELFTH Naval District Dental Officer, as Alternate to the ADA House  
of Delegates.

The following dental officers attended the indicated Reference Committee Hearings:

CAPT D. C. MAXFIELD DC USN  
NavSta San Francisco, California

Dental Trade and Laboratory Relations

CAPT R. A. MIDDLETON DC USN  
NavHosp Oakland, California

Hospital Dental Service

CAPT F. I. GONZALEZ JR DC USN  
NAS Alameda, California

Public Health

CAPT A. R. FRECHETTE DC USN  
CO NDS NNMCMC, Bethesda, Maryland

Dental Education

CAPT M. E. SIMPSON DC USN  
NSYD San Francisco, California

Federal Dental Services

CAPT M. A. MAZZARELLA DC USN  
MedResUnit 1 Univ. (Oakland) Calif.

Dental Research and Therapeutics

*Navy Dental Officers Participate in Periodontal Meeting.* Three Navy dental officers from the National Naval Medical Center, Bethesda, Maryland, participated in the Fiftieth Annual Meeting of the American Academy of Periodontology held in San Francisco, California, 4-7 November 1964. CAPT H. W. Lyon DC USN, NMRI, presented an essay entitled "Influence of Bone Marrow Implants." Captains T. R. Hunley and F. J. Kratochvil DC USN, NDS, presented a clinic on Supporting the Treatment of Advanced Periodontal Disease.

*Navy Presentation Before International Dental Society.* CDR G. H. Green DC USN, NDS, NNMCMC, Bethesda, Maryland, served as panelist for a conference on Keratotic Lesions of the Oral Mucous Membrane before the Second Annual Conference of the International Academy of Oral Pathology held in San Francisco, California 7-9 November 1964. He also monitored an exhibit entitled "Exhibit on Tongue Lesions" which was prepared by CAPT H. H. Scofield DC USN, LT COL J. Cornyn DC USAF, and CDR Green at the Armed Forces Institute of Pathology, Washington, D.C.

*Navy Participation in Conference on Military Dentistry.* CAPT V. J. Niiranen DC USN, Staff Dental Officer, Commandant, U. S. Marine Corps, served as Program Chairman for the Maxillofacial Meeting of the International Conference on Military Dentistry held in San Francisco, California, 7-14 November 1964. CAPT J. B. Lepley DC USN, NDS, NNMCMC, Bethesda, Maryland, presented an essay entitled "Special Prostheses and Material in Support of Medical Specialties." The conference was sponsored by the Armed Forces Dental Services Commission of the Federation Dentaire Internationale.

*Dental Service Report, DD Form 477-1.* Responsible dental officers are reminded that the Dental Service Report, DD Form 477-1, Equipment and Facilities Supplement, shall be submitted on 1 January each year in accordance with MANMED Art. 6-151. The original shall be addressed to BUMED (Code 612), one copy to the Field Branch BUMED, 3rd Ave. and 29th Street, Brooklyn, New York 11232, and one copy (unless otherwise directed) to the reviewing officer.

*Navy Dentist Receives Award for Professional Paper.* CAPT P. J. Boyne DC USN, USS BON HOMME RICHARD, was awarded a prize recently for a professional paper by the American Society of Oral Surgeons. The award was made at the Annual Session of the society held in Las Vegas, Nevada 3-7 Nov 1964.

*Naval Dental Officer is Guest Speaker at Meeting of the Guam Dental Society.* LCDR D. M. Grove DC USN, U. S. Naval Dental Clinic, Guam, M. I., recently presented an illustrated lecture entitled "Full Denture Techniques" before the Guam Dental Society at Anderson Air Force Base. The Society is a joint study club consisting of all military and most civilian dentists on Guam. Its purpose is to further professional knowledge by regular appearances of guest clinicians. Dr. Grove was elected President of the Society last July. Other elected officials include: CAPT Foreman KAN DC USAF, Secretary-Treasurer and LT O. B. Walker DC USN, U. S. Naval Dental Clinic, Guam, M. I., Program Chairman.

*Naval Reserve Dental Officers Meet.* CAPT R. F. Tuck DC USNR, Head, Dental Reserve Branch, BUMED.



served as Presiding Officer for the Naval Military Seminar held in San Francisco, California, 9 November 1964. RADM J. McN. Taylor USN, Commander Western Sea Frontier and Commandant TWELFTH Naval District, presented a talk titled "A Look at the World Situation Today." CAPT F. G. Grossman DC USN NDS, NNMC, Bethesda, Maryland, presented a paper on "The Naval Dental Corps' Preventive Dentistry Program." The film, *Intraoral Roentgenography—Improved Equipment and Technique* was shown during the meeting.

*Naval Dental Reserve Selection Board Commencing Dates.* 5 January 1965—Flag Selection Board will act as continuation board for Captains, as there are no vacancies in Flag Billets at this time; 2 March 1965—Selection Boards meet for selection to the rank of Captain and Commander from their respective eligible fields; 20 April 1965—Selection Board meets for selection to the rank of Lieutenant Commander from Lieutenants eligible for selection.

## DENTAL TECHNICIANS SELECTED FOR PROMOTION

Congratulations to the following dental enlisted personnel upon their selection for promotion:

### *Ensign MSC (Supply and Administration) USN*

Francis S. Connors (DT1)  
Jerry D. Galbreath (DT1)

NavDentClinic Brooklyn, New York  
COMNINE Great Lakes, Illinois

### *Advancement to DTCM Effective 16 November 1964*

M. B. Quinn  
J. A. Pogas

USS Coral Sea  
SUBBASE New London, Connecticut

### *Advancement to DTCS Effective 16 November 1964*

V. Blair  
W. W. Lee  
A. R. Howell  
R. L. Shell  
W. R. Sickles  
P. M. West

NavSta Charleston, South Carolina  
NavExamCtr Great Lakes, Illinois  
NDC Pearl Harbor, Hawaii  
2nd MarDiv FMFLANT  
NDC Washington, D. C.  
NDS NNMC Bethesda, Maryland

### *Advancement to DTCA Effective 16 November 1964*

F. B. Grisson  
J. P. Turan  
J. J. Mulligan  
C. W. Farthing

Naval Air Station Corpus Christi, Texas  
Naval Air Station Olathe, Kansas  
Naval Training Station Great Lakes, Ill.  
Marine Corps Air Station Cherry Point, N. C.

### *Advancement to DTCA Effective 16 January 1965*

C. W. Finley  
D. A. Johnson

NavMedResInst NNMC Bethesda, Maryland  
Marine Corps Recruit Depot San Diego, Calif.

## THE TEST THAT SAVES WOMEN'S LIVES

The "Pap" (short for Papanicolaou) smear, a painless, inexpensive cancer test done in the physician's office, is one of the most sensitive and reliable weapons in the arsenal of modern medicine for detecting cancer of the uterus at a time when it is most curable. Yet about 70 per cent of the American adult female population have never had this test, and 40 per cent have never even heard of it. Have you?

## CANCER KNOWS NO BOUNDARIES

"Cancer is not American, or British, or Russian, or African. It is international, worldwide, lawless, fenceless. Fighting it must be the common concern of all mankind . . . Cancer is not bothered by passports or petty politics. It can find a billet in any home, anywhere."

—Dr. Harry M. Nelson, Past President  
American Cancer Society

# AVIATION MEDICINE SECTION

## MEDICAL ASPECTS OF SPACE FLIGHT\*

*By Captain Frank B. Voris MC USN, National Aeronautics and Space Administration  
Publication, U. S. Government Printing Office, Washington, D.C., 20402.*

### *About the author:*

Capt. Frank B. Voris, USN, at the time he wrote this article, was Chief of Human Research in the Biotechnology and Human Research Division of NASA's Office of Advanced Research and Technology.

He received his Doctor of Medicine degree from the University of Illinois and served as resident surgeon at the St. Francis Hospital, Miami Beach, Fla. From 1937 to 1941 he was engaged in private surgical practice at Miami Beach.

In September 1941 he was called to active duty in the Medical Corps of the U. S. Navy. In July 1942, upon completion of a course in aviation medicine at Pensacola, Fla., he was designated a naval flight surgeon. In 1947, upon completion of flight training, he was qualified as a naval aviator. He was promoted to the rank of captain in July 1955.

Captain Voris has served as head of the Special Activities Branch of the Aerospace Medical Association, and in 1960 was Vice President for Aviation Medicine of the American College of Preventive Medicine.

In 1952 he was awarded the Founder's Medal of the Association of Military Surgeons of the United States; and in September 1962 he received from the American Medical Association a Special Aerospace Medicine

Honor Citation for service to the Nation and to medicine in the successful orbital flights of the American astronauts.



Frank B. Voris, M. D.  
Chief, Human Research  
Biotechnology and Human Research Division  
Office of Advanced Research and Technology,  
NASA\*.

### MANNED SPACE FLIGHT

NASA's manned space flight program includes Projects Mercury, Gemini and Apollo, in that order—and with increasingly complex medical aspects to come in future long-range flights.

Project Mercury was primarily an engineering exercise. For flights up to three orbits it was a fully automatic system, flown to test aerodynamics theory

and numerous engineered subsystems, including those designed to support a man in space. The testing of man and his ability was a secondary aim of these flights.

In passing from three-orbit flights to the six and one-half orbits of Walter Schirra and the 22 orbits of Gordon Cooper, we went beyond the original engineering test concept to a man-machine combination test mission. To extend Project Mercury flights beyond three

\* The original brochure contains eight photographs illustrating essential items in the text, and is for sale by the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402—Price 15 cents. It is highly recommended.—Editor

\* Now assigned to duty in the Bureau of Medicine and Surgery in the Research Development and Astronautical Sections of the Research Division, and as Director of the Astronautical Division of BUMED.



orbits, man was required to be in the vehicle. Beyond three orbits the system is no longer fully automatic; it is a man-machine combination in which the man assumes a most important and vital role. For future manned space flights, man and machine will be treated as a single entity, each depending on the other for successful mission completion.

In Project Gemini two men will ultimately orbit the earth for periods up to 2 weeks. Gemini will be a test bed for Project Apollo. Here we can test equipment, train and observe astronauts, and develop techniques in space rendezvous and docking.

Project Apollo calls for extended earth orbital flights and for landing men on the surface of the moon during this decade. It is planned that two men will land and explore the surface of the moon, to a limited degree, spending up to 4 hours at any one time, outside their lunar vehicle.

Future plans for man's space explorations go beyond the time duration and distance limitations for Project Apollo. We look to men being in space vehicles for periods over a year or living in permanent lunar or planetary bases for even longer periods. Once orbital stations and laboratories are in operational use, it is conceived that crews will be relieved periodically every 30 days or so. During the changing of crews and observers, the orbiting spacecraft will be resupplied with food, oxygen, fuel, and other necessities. This "luxury" of relief and resupply will probably not be available for interplanetary flights such as to Mars or perhaps Venus. There is need for research into the human physiological response and performance required for and found during such long-term flights.

## MAJOR HUMAN RESEARCH PROBLEMS

When we stop to think about it, we realize that for the first time we are now placing man in a hostile environment in which there is literally nothing to help support him. In submarines we may use water to good advantage; in high altitude jet aircraft we scoop up enough air to compress for man's use; in the Antarctic man is able to use much of the natural environment to exist. In space, however, only the energy of the sun is available for man and this only partially supplies the power he requires. He must take his gaseous atmospheres and pressures and his food, water, and energy supplies with him, or perish.

## SUPPLYING RESPIRATORY REQUIREMENTS

Let us consider our most obvious problem, that of supplying man with his respiratory requirements. As in Mercury, in Project Apollo we plan to use pure oxygen at a pressure of 5 pounds per square inch. The Russians have used 14.7 pounds per square inch with approximately 20 percent oxygen on all their flights. Although our 100 percent oxygen systems have proven adequate, and hopefully they will continue to be so, I

feel that for our advanced missions of over 14 days we will be required to go to a mixed gas system of more than 5 pounds per square inch. The reasoning behind this is the results of research on oxygen toxicity, the development of atelectasis in subjects on 100 percent oxygen, and the results of studies in radiation effect on living tissue that is saturated with 100 percent oxygen.

Because of restrictive weight penalties, we are required to reclaim all the unused oxygen from the astronauts' expired breath. As of now, and for our future flights, the carbon dioxide and trace contaminants must be removed chemically from the expired oxygen prior to re-use by the astronaut. For more advanced systems this carbon dioxide will be broken down into carbon and oxygen. The carbon will be used for radiation shielding; and, of course, the oxygen will be used for the gaseous atmosphere.

The reclaimed water may also be hydrolyzed producing hydrogen which can then be combined with the carbon to produce methane, which can be further synthesized to form formaldehyde and finally various sugars. Again, the oxygen will be used for breathing. Thus, future vehicles and planetary bases will utilize each atom of material available, producing usable oxygen and edible sugars from the carbon dioxide and water produced by the body metabolism of man.

In using a mixed gas system, we must find an inert gas with a low diffusion factor that is non-toxic, light, and easily obtained, handled and stored. We know something about the physiological effects of nitrogen; we know less about helium and very little about argon, neon, and other rare inert gases. It appears reasonable at this point to predict that nitrogen will be chosen for our early extended flights. However, our on-going research into these other gases may prove this view wrong.

To protect the present-day astronaut from the effects of losing his capsule pressures, we place him in a full pressure suit. Should his capsule be struck by a meteoroid or in any manner lose its atmospheric integrity, the astronaut without his suit would be exposed to a vacuum. The dissolved gases within his blood and body tissue would immediately be released and he would suffer death within a very short time.

The full pressure suit is air impervious and it fully encapsulates the man. When the capsule pressure drops below 5 pounds per square inch, the suit valve closes and air pressure within the suit supplies enough pressure to keep the man fully surrounded by 5 pounds of air pressure. The suit is a necessary safety device, but it is cumbersome when under pressure; and, under normal operation conditions it requires a high ventilation flow of dry cool air to keep the astronaut from suffering from heat and his own sweat. Incidentally, the full pressure suit is a primary piece of fire-fighting equipment. In space the most expeditious and safest

means of putting out a fire within the capsule is to open the capsule, thus creating a vacuum within. Without oxygen the fire dies. The suit keeps the man at 5 pounds per square inch.

Here again, it is my personal opinion that we cannot keep our future astronauts in the present full pressure suit for prolonged periods. We are hard at work trying to devise methods of affording the astronauts the safety features of a full pressure suit with the comforts and facilities of a "shirt-sleeve" environment. This is no easy task.

Furthermore, future space operations require extravehicular maneuvering of men in free space as well as on lunar and planetary surfaces. Here the man will be required to work in varying degrees of a weightless state, and thus in reduced or frictionless environments. He will be subjected to extremes in temperatures, brilliant light or extreme darkness, and, of course, to radiation hazards. We must devise and provide adequate protective extravehicular suits for individual space men with reliable independent life support systems and self-maneuvering devices.

### PROBLEMS OF ACCELERATION FORCES

Another major area of concern to the space surgeon is that of acceleration. In order to withstand the acceleration forces required to boost a vehicle into orbital or escape speeds, we place man on his back facing the line of flight. Thus, the acceleration forces during the boost phase are exerted on him and his organs transversely from chest to back. Should he be in a seated position, the acceleration forces would act from his head to his buttocks. Pressures would build up within the cardiovascular system that would prevent sufficient blood from reaching the brain, and thus cause unconsciousness. Prolonged ischemia can cause permanent cerebral damage. In a horizontal position the cardiovascular system becomes a horizontal pumping system. Thus, the blood cannot pool in dependent organs and limbs. There is little build-up of hemodynamic pressures, and the heart has the capacity to pump blood into the brain. The period of useful consciousness is greatly extended during prolonged acceleration forces.

Each astronaut has a custom-made, form-fitting molded couch in his vehicle. By this fact, when acceleration forces increase the body weight, these excessive forces are distributed equally throughout nearly one-half his entire body surface. He can remain relatively comfortable through prolonged high G force phases of flight.

### PROBLEMS OF WEIGHTLESSNESS

Another environmental factor of considerable concern that is receiving a great deal of scientific attention is weightlessness.

Once through the acceleration phase, the astronaut

suddenly finds himself weightless. Under this condition nothing has weight. Thus, the blood within the blood vessels is as weightless as any other portion of the body or anything in the vehicle. Weightlessness is a phenomenon caused by the speed of the vehicle counteracting the gravity force of the earth. At a speed of 17,500 miles per hour, the vehicle will rotate about the earth at approximately 100 miles of altitude in a relatively fixed orbital path.

Theoretically, should the earth's gravitational pull suddenly cease, a speeding orbital vehicle would shoot away from the earth in a straight line tangential to the earth. The balance between the speed of the vehicle and the earth's gravitational pull is a delicate one. The firing of the retrorockets slows the vehicle only about 350 miles per hour, but this is enough to allow gravity to take over and bring the vehicle gradually toward the earth. Once the capsule begins to contact the atmosphere, the resistance to the speeding vehicle increases and the deceleration rate increases.

To date, effects of weightlessness have not been detrimental to man in space. However, we have reason to believe that over longer periods of time weightlessness may take its toll in producing adverse physiological effects. Most of us are well aware of the reaction of well and healthy individuals who have been restricted to absolute bed rest for prolonged periods. First, upon rising they become faint, developing varying degrees of syncopal symptoms from blanching to loss of consciousness. Secondly, should they be kept on their feet, they develop dependent edema, or swelling of the feet and ankles. The same effect has been noted in subjects who have been fully submerged in water during studies of neutral buoyancy. The cardiac action and capacity have changed and cannot react quickly to the alterations in the hemodynamics of the changed position of the body. Again, the characteristics of the peripheral vascular system have changed. The arteries and veins of the lower portions of the body do not accommodate the blood, and the tissues become edematous. The kidney function is altered, with noticeable increase in urine output.

A very serious effect of prolonged bed rest and neutral buoyancy is that of a shift in the body metabolite balance. The major shift is a marked increase in blood calcium which is subsequently excreted by the kidneys. This increase is due to a rather early and definite demineralization of the bones. This factor has been noted in examining the astronauts after Project Mercury flights. We do not know the mechanisms that cause these physiological changes in the basic functions of the body. We have no idea how far the cardiovascular system adapts to the dynamics of weightlessness or how great demineralization becomes before the process slows or stops, if in fact it does stop.

With the thought that bed rest without exercise caused the aforementioned changes, the experimenters



had half of the subjects do vigorous exercises while remaining flat on their backs. The exercise worked wonders for the muscular system, but the results on the cardiovascular system and the metabolic processes were the same as for those who did no exercising.

What can this mean to the astronaut if these changes progress over several weeks or months of weightlessness? First, the cardiovascular system and the bony structure of the body may fail upon being subjected to the relatively prolonged and high acceleration forces experienced during reentry. Loss of consciousness, myocardial insufficiency, or complete cardiac failure may result. Fractures may result from the loss of adequate bone structure. We may well be required to place a successfully returned astronaut in a rehabilitation center where he will gradually regain bodily activity and learn to walk again. The one-gravity field we know and react to so well here on earth will be strange to the astronaut.

### RADIATION HAZARDS

A third major hazard to which we have turned considerable attention is that of radiation. The effects of certain radiations are well known to us. We have developed equipment to produce a variety of radiation energies and particles and have exposed biological specimens to these hazards. However, we still know very little of the biological effects of mixed radiation energies and the extent of effects due to secondary energies received by occupants in spacecraft. Much more work must be done to develop better passive and active shielding systems for future flights.

During Projects Mercury and Gemini and through the early Apollo flights very little, if any, radiation hazards will have been encountered. We are interested in the heavy primary strikes from galactic sources but as these flights are not scheduled to meet the Van Allen Belt concentrations, there is little concern for the astronaut. The later Apollo flights will be required to pass through the earth's geomagnetic fields and into outer space where the full energies of the sun and its solar flares will be met. We have not been successful in fully mapping this space for its radiation hazards nor have

we accurately defined the concentrations and varieties of the mixed radiation energies to be met.

Additional hazards will result when men leave the protective shell of the vehicle for extravehicular work in free space or on the lunar surface. Added biological effects of radiation exposure may result from using 100 percent oxygen during these extravehicular operations.

Future plans call for active shielding systems that may well place a man in a vehicle surrounded by a strong electromagnetic field that will repel or trap the particles much as our own earth's geomagnetic fields do. What effects these high-magnetic fields have on man is still unknown. Another facet of study concerning electromagnetic fields involves the biological effects of null or low field forces and, of course, the effects on living tissue passing through varying magnetic field forces. We are extensively studying animals and men in altered magnetic fields and hope to have definite answers in the near future.

### CHANGE OF COMMAND CEREMONY AT U. S. NAVAL AVIATION MEDICAL CENTER

On 4 November 1964 in a formal military Change of Command Ceremony, RADM James L. Holland, MC USN relieved RADM Langdon C. Newman, MC USN as Commanding Officer of the U. S. Naval Aviation Medical Center, Pensacola, Florida.

Present on the Reviewing Stand were: Vice Admiral A. S. Heyward, Jr., USN, Chief of Naval Air Training; Rear Admiral Daniel F. Smith, USN, Chief of Naval Air Basic Training; Rear Admiral Robert B. Brown, MC USN, Deputy and Assistant Chief of the Bureau of Medicine and Surgery; Rear Admiral Herbert H. Eighthy, MC USN, Assistant Chief for Personnel and Professional Operations, Bureau of Medicine and Surgery; and other military and civilian dignitaries.

Rear Admiral Holland recently was assigned as Fleet Surgeon on the Staff of the Commander in Chief, United States Pacific Fleet. Rear Admiral Newman's next assignment will be in the Bureau of Medicine and Surgery as Assistant Chief for Research and Military Medical Specialties.

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### CANCER MUST BE TREATED EARLY

Early diagnosis and treatment holds the best hope for cure. Two ways to protect yourself: Have an annual health examination and be alert to cancer's seven danger signals. Get copies of the seven danger signals by calling or writing to your local American Cancer Society.

### DIET COUNSEL FOR HOMEBOUND

In Newark, N. J., a nutritionist, provided through the Visiting Nurses Association, teaches homebound patients how to select and prepare foods for new or modified diets. The fee charged for the service is adjusted for patients unable to pay full or partial costs. —Public Health Reports 78(12): 1060, December 1963.



LCDR RICHARD A. MILLINGTON, MC USN, RECEIVED THE NAVY COMMENDATION MEDAL FROM THE SECRETARY OF THE NAVY ON 19 OCTOBER 1964 FOR SERVICE AS SET FORTH IN THE FOLLOWING CITATION:

"For meritorious achievement while serving with Air Development Squadron SIX (VX-6) on the flight from Capetown, South Africa to McMurdo Station, Antarctica on 30 September-October 1963. As a special crew member of a ski-equipped LC-130F Hercules aircraft, LCDR Millington, through his professional skill and meticulous attention to detail, contributed materially to the successful completion of this pioneering and trail-blazing, nonstop flight of 4,700 miles over unknown waters of the South Atlantic Ocean and the uncharted wastes of Antarctica. His fortitude and devotion to duty were in keeping with the highest traditions of the United States Naval Service."

### BOTULISM

Four cases of botulism were reported from California recently making the cumulative total of cases reported thus far in the United States this year 15, compared to 34 for a similar period in 1963. *The 4 cases from California represented an outbreak attributable to home canned peppers.* California leads all other States in the number of cases reported this year, with a total of 7.

The majority of cases in 1963 were due to commercial products whereas this year, *all cases have been attributed to the consumption of home canned products.* No cases of type E botulism have been reported to date this year.

The following table presents the number of cases of botulism outbreaks for the 10 highest years since 1899.

## MISCELLANY

### CASES OF BOTULISM—HIGHEST YEARS 1899–1963

	CASES	DEATHS	YEAR
1st	89	56	1919
2nd	71	43	1935
3rd	63	22	1921
4th	59	48	1922
5th	50	31	1924
6th	48	31	1931
7th	47	18	1939
8th	47	14	1963
9th	46	34	1932
10th	44	32	1941

SOURCE: 1899–1949—Meyer, K. F. and Eddie, B. "Fifty Years of Botulism in the United States and Canada," George Williams Hooper Foundation, University of California, San Francisco. 1950–1963—State Reports received by NOVS and CDC.

### NAVY NURSE GIVEN MEDAL FOR PERFECT SCHOOL RECORD

Boulder, Colo.—Lieutenant Phyllis J. Elsas, Navy Nurse Corps, has received the University of Colorado's Distinguished Service Medal for outstanding performance of obtaining a perfect scholastic record.

She is the only person in the history of the school to graduate with perfect marks.

The presentation was made here during a Navy Day review at the university. (AFPS—Nov. 8, 1964)

### THERMOMETERS (BAGGING TO REDUCE CROSS INFECTION)

A new technic of bagging thermometers to reduce cross-infection in hospitals has been developed in Den-



mark. Thermometers are sterilized by immersion in 1:1000 Zephiran (benzalkonium) chloride solution for two hours. After washing and drying each thermometer is placed in a small cellophane bag. The ward nurse hands the bag to the patient who removes the thermometer, takes his temperature, and replaces the thermometer in the bag. The nurse reads the thermometer through the cellophane. The bagged thermometer is then returned to the central sterilizing room. Thus, no one in the ward except the patient handles the thermometer between one sterilization and the next.—Med. News (London, Eng.), No. 102, Sept 18, 1964.—Clin-Alert®, No. 302, Nov 3, 1964 (by permission).

### DIRECTOR, NAVY NURSE CORPS' CONFERENCE

The Chiefs of Nursing Service of all naval hospitals within the continental limits of the United States attended a 3 day Navy Nurse Corps Director's Conference from 14–16 October at the National Naval Medical Center, Bethesda, Maryland. Captain Ruth A. Erickson, NC, USN, convened the meeting for the Senior Nurse Corps officers. Captain Dorothy P. Monahan, NC, USN, Deputy Director, moderated the program.

Rear Admiral C. B. Galloway, MC, USN, Commanding Officer of the National Naval Medical Center, welcomed the senior nurses during the opening session. Following this, Rear Admiral Robert B. Brown, MC, USN, Deputy Surgeon General, addressed the conferees.

Captain Erickson spoke to the senior nurses throughout the program in areas concerning the theme of the meeting, "Today's Action Determines Our Tomorrow." She presented a profile of the Corps; discussed an ongoing research project on retention of nursing personnel; explained personnel policies for assignment, education, and advancement of nurses; probed problem areas; and voiced her concern about the current critical shortage of nurses. Captain Erickson also informed the Chief Nurses of continuing projects and activities that will be of assistance to nursing services and the Nurse Corps.

Other highlights of the meeting included various presentations by selected Chiefs of Nursing Services, by members of the Education and Research Branches of the Naval Medical School and by members of the Nursing Division staff. The individual speakers interwove subjects on utilization of nursing personnel, televised programmed instruction for nurses, counseling and guidance techniques, management, and research as areas of action being undertaken today that will serve to improve the Nurse Corps tomorrow.

Other distinguished guests included Dr. D. George Kousoulas, Dr. John C. Lang, and Dr. Esther Lloyd-

Jones. Professor Kousoulas, a faculty member of Howard University, discussed "Perspectives of the Communist Movement Today." Dr. Lang, Head of the Curriculum and Instruction Branch, Bureau of Naval Personnel, Washington, D. C., spoke on "In Navy Education and Training." Professor Lloyd-Jones, Head of the Department of Guidance and Student Personnel Administration, Teachers College, Columbia University, New York, discussed "Programming for Guidance and Counseling in Nursing Service."—Nursing Division, BuMed

### THE VALUE OF A NAVY CAREER\*

*By LCDR J. P. Kirsch, MSC USN\*\*. From Supplement Prepared by the Great Lakes BULLETIN in Celebration of NAVY DAY, 1964.*

Value is a relative term, therefore it must be related to specific items to have real meaning.

First, when related in terms of money (which is understandable to everyone) the value of a Navy Career can be measured in dollars and cents. To a young man entering the Navy as a seaman recruit and who is willing to work and study hard for 30 years—it can equal an investment of more than \$150,000 at 4% per year. In other words, he can retire at \$570 per month for life.

Second, when related to education—it can mean learning a profession by taking advantage of the Navy's A, B, and C schools. It can mean gaining a high school diploma or a college degree at night under Navy sponsorship and with Navy financial aid. It can mean full time college training under the NESEP program or even education at the Naval Academy. And for the ones who are real energetic, it can mean a master's degree through postgraduate school in the Navy or a civilian university at Navy expense and at full pay.

Third, when related to prestige—it can mean rising from the average status of a recruit through the enlisted ranks to become a commissioned officer. This can be done through many different programs—MSC, NESEP, Warrant to LDO, or Naval Academy. When a man has worked his way up through the enlisted rates and into the commissioned officer ranks, he has gained the respect of his contemporaries and seniors alike—he has prestige that can be questioned by no man.

Fourth, when related to security—the value of a Navy career is knowing that you have a job and a pay check for as long as you are willing to work hard and put forth your best, knowing your health will be protected and that you will receive free medical and dental care—while receiving full pay—by the very best medical and dental personnel, knowing that your wife and children will receive medical care at military or civilian hospitals, and knowing that, if adversity strikes, "The

Navy takes care of its own" through its allied organizations. And finally, you know that you can retire after 20 years of service if you so desire.

Fifth, when related to patriotism—the value of service to our country is intangible and cannot be measured—yet it is the most important of all. Learning love for our country through service in peace and war has a way of going deep inside of a man. A love which puts a lump in his throat or a tear in his eye every time he sees our flag raised or hears our National Anthem played. These values cannot be bought or sold—money does not affect them, they are instilled through the esprit de corps of naval service.

Do these values sound a little far fetched?

Seaman Recruit to Lieutenant Commander

\$570 a month for life at retirement

A college education

Prestige as an officer

Personal health security

Family health security

An intense love of our country through service in protecting and perpetuating the greatest country in the world.

A little unbelievable? A touch of Horatio Alger? Perhaps . . . but I can prove it—it happened to me!

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\* Nine winners of the Navy Day Essay Contest at the U. S. Naval Training Center, Great Lakes, Illinois, were awarded their prizes Friday, Oct. 16 by Captain E. G. Sanderson, USN, Center Commander.

All center personnel and their dependents, over 12, were eligible for the contest.

The contest consisted of three categories. "The Value of a Navy Career" was category one in which officers and enlisted men on their second tour of duty were eligible. "Why I Chose The Navy" was category two which included first tour personnel, both officer and enlisted. "Challenges Facing Navy Dependents" was category three which included Navy dependents.

First place winner in category one was Lieutenant Commander, J. P. Kirsch, NEC. LCDR Kirsch won a 16-inch portable TV. Second and third place prizes went to G. S. Johnson, CS2 and W. H. Arthur, HM3. They received portable radios.

In category two, first prize went to Elizabeth Martin, SA, Wave Admin; she was awarded an RCA transistor radio. Second and third place winners were Lieutenant (jg) A. P. McLaughlin of DPWO and B. J. Wilson, SA, Public Works. Both were awarded a six-transistor radio.

"Challenges Facing Navy Dependents," the third category, was won by Mrs. Patrick C. Racey. Mrs. Racey was awarded an automatic washer. The second place prize was a stereo phonograph awarded to Miss Anita Anthony. Mrs. G. M. Moga won a radio.

An honorable mention was given to Miss Ramona Federle, a 12-year-old dependent. Captain Sanderson commended her on the thought and originality she showed for such a young girl.

\*\* Lieutenant Commander Kirsch, a resident of Mundelein, Illinois, and a native of Hills, Minnesota, is currently attached to the Naval Examining Center. Happily married, and the father of three children. He admits, in his essay, to being a 30-year career man.

## DR. WALTON JONES NAMED ACTING HEAD OF NASA BIOTECHNOLOGY

Dr. Walton L. Jones, Jr., became Acting Director of the Biotechnology and Human Research Division at Headquarters, National Aeronautics and Space Ad-

ministration, effective Oct. 26. He succeeded Dr. Eugene B. Konecni who resigned to join the staff of the National Aeronautics and Space Council.

The assignment was announced by Dr. Raymond L. Bisplinghoff, NASA Associate Administrator for Advanced Research and Technology.

The Biotechnology and Human Research Division is concerned with research and advanced technology for the support of man in aeronautical and space flight and the means to assure his capabilities in extended flights.

Dr. Jones joined the division May 5, and later succeeded Dr. Frank B. Voris as Head of the Human Research Branch. Dr. Jones is an active duty Captain and Flight Surgeon in the U. S. Navy Medical Corps. Before coming to NASA he was Director of the Aviation Medicine Technical Division of the Navy's Bureau of Medicine and Surgery.

—NASA News, Release No. 64-268, October 23, 1964.

## MORTAR SHELL CASUALTIES FROM BIEN HOA AIRBASE TREATED AT U. S. NAVY STATION HOSPITAL, SAIGON

Viet Nam, 2 Nov 1964—Fifteen hours after communist Viet Cong mortar shells began falling on U. S. Military planes and personnel at Bien Hoa Airbase, *Navy doctors, nurses and corpsmen at the U. S. Navy Station Hospital here were still treating the wounded.* Casualties began arriving by helicopters shortly after 2 A.M. this morning and were rushed to the hospital which cares for U. S. Military personnel wounded in combat in the southern part of RVN. The hospital's fleet of ambulances shuttled wounded from a medical evacuation Helo landing field most of the morning. *The field is a six-minute ride from the hospital emergency and operating rooms.* A few minutes after receiving word of the action about 2 A. M., the hospital's entire staff was alerted and went into action. As the wounded arrived, the extent of their injuries was determined and each casualty received immediate treatment accordingly. By 2 P. M., 14 U. S. Army and 2 USAF enlisted men had been treated for wounds received in the Bien Hoa attack. By that time, only two were reported on the serious list and one was described as critical. The U. S. Navy Station Hospital, Saigon, which is the only U. S. Navy medical facility in the world involved in the treatment of war-wounded direct from the field of action, is especially set up to handle mass combat casualties. It has a staff of 9 Navy Medical Officers, 2 Medical Service Corps officers, 8 Navy Nurse Corps Officers, and 73 Navy Hospital Corpsmen. The hospital is a facility of the U. S. Navy Headquarters Support Activity, Saigon, Commanded by Captain Archie C. Kuntze, U. S. Navy.



# Training Notice

## NEW INFORMATION ON AFIP POST GRADUATE SHORT COURSES FOR SECOND HALF OF FISCAL YEAR 1965

In the U. S. Navy Medical News Letter issue of 23 October 1964, Vol. 44, No. 8, page 25, there were listed the postgraduate short courses for FY 1965 scheduled at U. S. Army facilities and at the Armed Forces Institute of Pathology. The following two courses are added to that list:

The inclusive dates for the Annual Armed Forces Institute of Pathology Lectures—1965, should be 29 Mar–2 Apr 1965 MC, instead of the dates listed in the above reference (15–19 Feb 1965 MC).—Editor

<i>Courses</i>	<i>Location</i>	<i>Date</i>	<i>Corps</i>
Forensic Pathology	AFIP	11–15 Jan 65	MC
Ophthalmic Pathology	AFIP	12–16 Apr 65	MC

### IMPORTANT CORRECTION NOTICE FOR U. S. NAVY MEDICAL NEWS LETTER OF 23 OCT 1964, VOLUME 44, NO. 8, PAGE 24

Reference is made to paragraph 4d (2)(a) of BUMED INSTRUCTION 6230.11C; which is corrected to read as follows:

"The tablet size for pyrimethamine, used in pediatric practice for malaria suppression, is incorrectly stated in BUMED INSTRUCTION 6230.11C. The correct size

is 25 mg., the only size available commercially. For greater convenience in use, the dosage has been recomputed on an age basis instead of a body weight basis. As given in ALNAV No. 44, the correct dosage is now 12.5 mg. (one-half tablet) once weekly for children ages 1 through 14 years, and 6.3 mg. (one-fourth tablet) once weekly for infants under one year of age."

Holders of the above issue of the Medical News Letter are requested to make these important changes in pen and ink.  
—Editor

### WHO AIDS TUBERCULOSIS CAMPAIGN IN PERU

The Government of Peru, with the assistance of the Pan American Sanitary Bureau (WHO Regional Office for the Americas) and UNICEF, is to conduct a campaign against tuberculosis among the 100,000 inhabitants of its three southernmost provinces, Tacna, Tarata, and Mariscal Nieto. In Tacna, which borders on Chile and has an area of 4182 square miles, the tuberculosis case rate for 1961 was 760 per 100,000 population as against 425 for the entire country.

The aim is to take radiographs and carry out tuberculin tests of at least 80% of the population of the three provinces between 1964 and 1966. Mass BCG vaccination programmes will protect those in good health and tuberculosis sufferers will receive drug treatment. WHO is to provide technical personnel, including a tuberculosis specialist, a statistician, and a public health nurse, and it will also give fellowships to Peruvian health workers to study tuberculosis control methods abroad. UNICEF will provide \$58,000 worth of equip-

ment and supplies, including a mobile x-ray unit. The Government of Peru will meet the local costs of the programme, which are estimated to be \$46,000 a year.—WHO Chronicle 18(9): 357, September 1964.

### HOME NURSING FILM

A motion picture series of 10 half-hour films, entitled "The Home Nursing Story," makes it easier for persons to learn how to safeguard family health, to know what to do when illness strikes and how to care for the sick and injured if disaster disrupts family life. The series was made for the American Red Cross by the Army Signal Corps, with funds provided by the Office of Civil Defense.

A companion workbook contains tips on teacher preparation and how to present the films. It also lists possible followup activities. Information about loan or purchase of the film series may be obtained through local American Red Cross chapters.—Public Health Reports 78(12): 1060, December 1963.

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